

IN THE CLAIMS:

The following is a complete listing of the claims in this application, reflects all changes currently being made to the claims, and replaces all earlier versions and all earlier listings of the claims:

1. (Original) An image processing apparatus comprising:  
first coding means for performing coding by band having a predetermined height;  
first decoding means for decoding data coded by said first coding means into bitmap data;  
memory means for storing the bitmap data for one band decoded by said first decoding means;  
second coding means for encoding the bitmap data stored in said memory means by a coding method selected from plural coding methods; and  
second decoding means for selecting and performing a first decoding method capable of transferring the bitmap data to a printer engine in realtime, or a second decoding method which needs to render the bitmap data before transferring the data to the printer engine, in accordance with the coding method selected by said second coding means,  
wherein before coding is performed by said first coding means, a decoding method performed by said second decoding means is predicted, and if the predicted decoding method is the second decoding method, the band height is reduced to half of that in case of the first decoding method.

2. (Currently Amended) An image processing apparatus comprising:

memory means including a first area for storing coded representation of image data and a second area for storing raster image data of at least a band;

coded-representation forming means for translating respective image data of plural bands into coded representation and storing the coded representation into said first area of said memory means;

rendering means for rendering the coded representation from said first area into said second area, in said memory means;

coding means for encoding the raster image data rendered in said second area into coded data and storing the coded data by page in said memory means;

decoding means for decoding the coded data;

decoding-method discrimination means for discriminating whether a decoding method performed by said decoding means is a first decoding method, capable of transferring decoded raster image data to a printer engine in real time, or a second decoding method necessary for, which needs to perform rendering of the decoded raster image data in a memory before parallel with transferring the raster image data, which has been rendered in the other band of the second area by the second decoding method, to the printer engine; and

band-height setting means for setting a band height based on the result of discrimination by said decoding method discrimination means,

wherein, in a case where the decoding method discriminated by said decoding-method discrimination means is the second decoding method, said band-height setting means sets the band height to be lower than the height in the first decoding method.

3. (Previously Presented) The image processing apparatus according to claim 2, wherein in a case where the decoding method discriminated by said decoding-method discrimination means is the second decoding method, said band-height setting means sets the band height to half of that in case of the first decoding method.

4. (Original) The image processing apparatus according to claim 2, further comprising input means for inputting image data in page description language.

5. (Original) The image processing apparatus according to claim 4, wherein said coded-representation forming means converts said page description language into coded representation including at least one of a bitmap object, a run length object, a trapezoidal object, a box object, and a fixed-boundary code object.

6. (Original) The image processing apparatus according to claim 2, further comprising image-type discrimination means for discriminating an image type of said image data,

wherein said coding means selects a coding method corresponding to the image type discriminated by said image-type discrimination means from plural coding methods and performs coding by the selected coding method.

7. (Previously Presented) The image processing apparatus according to claim 2, further comprising release means for releasing said first area in which said coded

representation is stored after storing the coded data page by page in said memory means by said coding means.

8. (Currently Amended) An image processing method for encoding input image data in band units and storing coded data for one page, then transferring the coded data to a printer engine while decoding the data, comprising:

a discrimination step, of discriminating whether or not a decoding method ~~necessary for temporarily needs to perform temporarily rendering of a decoded raster image data in a memory before parallel with~~ transferring the raster image data, which has been rendered in the other band of the second area by the second decoding method, to the printer engine is used, based on input image data; and

a band-height setting step, of, if it is discriminated in said discrimination step that said decoding method is used, setting a band height to half of that where said decoding method is not used.

9. (Previously Presented) The image processing method according to claim 8, further comprising:

a translation step, of translating the input image data into coded representation by each band having the height set in said band-height setting step;

a first storage step, of storing the coded representation;

a rendering step, of rendering the stored coded representation by band into a band raster image;

a second storage step, of storing the rendered band raster image;

a coding step, of encoding the stored band raster image and storing the coded data for one page; and

decode and transfer steps, of temporarily rendering coded data by band and then transferring the data to a printer engine.

10. (Previously Presented) The image processing method according to claim 9, wherein, in said decoding and transfer steps, a memory for two-band raster images is used as a double buffer, and said decode and transfer steps are performed in parallel.

11. (Currently Amended) A storage medium containing program code, read and executed by a computer, to function as an image processing apparatus which encodes input image data by band and stores coded data for one page, and transfers the coded data to a printer engine while decoding the data, said program code including:  
program code for discriminating whether or not a decoding method necessary for temporarily needs to perform temporarily rendering of a decoded raster image data in a memory before parallel with transferring the raster image data, which has been rendered in the other band of the second area by the second decoding method, to the printer engine is used, based on input image data; and

band-height setting program code for, if it is discriminated that said decoding method is used, setting a band height to half of that where said decoding method is not used.